

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

HARRIS CORPORATION,

Plaintiff,

v.

HUAWEI DEVICE USA, INC., HUAWEI
DEVICE CO., LTD., HUAWEI
TECHNOLOGIES USA INC., HUAWEI
TECHNOLOGIES CO. LTD., AND
HUAWEI DEVICE (SHENZHEN) CO.,
LTD.

Defendants.

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) CIVIL ACTION NO. 2:18-cv-00439-JRG
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JURY TRIAL DEMANDED
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PLAINTIFF HARRIS CORPORATION'S RESPONSE IN OPPOSITION TO
DEFENDANTS' MOTION TO DISMISS

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I. INTRODUCTION

Harris Corporation is an innovative company that researches, develops, and implements complex communication and information technologies—for both government and commercial markets in the United States and abroad. The seven patents asserted in this case represent early and important advances in the field of secure wireless networking. Most of these patented technologies were initially developed by Harris engineers and scientists with military and intelligence applications in mind—some under Air Force or Naval Research contracts. For example, the patented technologies improved battlefield communications equipment, helping to provide secure, adaptive wireless communication networks for troops under difficult conditions. As is often true, the technology Harris developed and patented represented significant advances applicable to commercial wireless networking as well. This lawsuit seeks to hold Huawei accountable for appropriating those patented advances in its own products without license.

In response, Defendants ask the Court to take the extraordinary step of dismissing every claim of each of these patents before claim construction or fact discovery has even started. In a brief filled with conclusory assertions, Huawei argues that *none* of the 362 claims of the seven asserted patents contain a patent-eligible invention—or a term that requires construction in order to understand its meaning, or even a fact dispute. On its face, this is exceedingly implausible, and as demonstrated below, such a result would be contrary to the law and the pled facts.

In the first instance, Huawei has not met its burden to show that the few claims it chooses to focus on are representative. And Huawei's sparse and reductionist treatment of those claims it chooses to discuss completely ignores important claim elements, as well as teachings about the claimed improvements in the specification and cases finding such improvements patent eligible. Those ignored or trivialized claim elements, properly understood in the context of the patents'

teachings, constitute specific improvements that render the claims non-abstract and patent eligible—as explained in detail below.

Improvements to computer and networking systems and processes are routinely deemed non-abstract and patent eligible. Huawei’s analogies to invalid example claims from cherry-picked cases are easily distinguished and are countered by equivalent examples of claims where eligibility was upheld. Huawei’s Motion never fairly addresses the proper starting point of an eligibility analysis—the actual claimed advance of the patent as detailed in the specification and captured in the claims. Here those technical advances are indeed taught in the specifications and claimed, demonstrating that these patent claims are patentable. *See, e.g.*, ’986 patent at 2:1-4 (detailing problems in existing wireless networks due to mobile nodes entering into and dropping out of the network), 2:35-37 (summarizing a novel approach to scheduling time slots to account for this problem), 57:5-19 (claiming an embodiment of this approach).

Instead, at step one Huawei generalizes certain claims to an unreasonably high level, ignoring vital details in order to make them seem abstract. And at step two, Huawei similarly ignores the unconventional elements of the claimed solution, preferring instead to repeat conclusory assertions that various other claimed computer parts and steps are generic. Finally, Huawei’s Motion never considers the claims as an ordered combination, despite clear instruction that it must do so.

In short, Huawei’s Motion fails to meet its burden to establish that any patent claim here lacks patent eligibility. The complaint and the patents themselves provide sufficient factual support—taken as true as is required on a motion to dismiss—to uphold the presumptive patent eligibility of the challenged claims. Harris respectfully requests that the Motion be denied.

II. DEFENDANTS' MOTION IGNORES AND MISAPPLIES SECTION 101 LAW

A. Patents are presumed valid, and Defendants must present clear and convincing evidence to show otherwise

Issued patents are presumed to be patent eligible. Defendants have the burden to disprove this presumptive validity, and must do so with clear and convincing evidence. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018) (citing *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011)). This high burden of proof applies to the section 101 analysis and its underlying fact question of “whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field.” *Id.* Defendants cannot satisfy this burden with mere conclusory statements. *See, e.g., ContentGuard Holdings, Inc. v. Google, Inc.*, No. 2:14-CV-61-JRG, 2016 WL 7665900, at * 7 (E.D. Tex. July 8, 2016). Indeed, because of the presumption of validity and high burden of proof, judgment of invalidity as a matter of law (at Rule 12 or at later stages) “is generally ‘reserved for extreme cases.’” *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1364 (Fed. Cir. 2018). As detailed below, Defendants do not even come close to making the required showing here.

Defendants brought their Motion on the pleadings, and so must overcome even more here. On a Rule 12 motion, the Court must accept the factual allegations of the complaint as true and must “draw all reasonable inferences in the plaintiff’s favor.” *Lormand v. U.S. Unwired, Inc.*, 565 F.3d 228, 232 (5th Cir. 2009). This presumption of truth extends to statements about the invention in the asserted patents attached to the complaint. *See, e.g., Intellectual Ventures II LLC v. FedEx Corp.*, No. 2:16-CV-00980-JRG, Dkt. 526 at 12 (E.D. Tex. May 10, 2018). Both steps of the eligibility analysis are informed by the statements and teachings of the patent specification. *See, e.g., Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1299 (Fed. Cir. 2016). Those statements and teachings are not subject to dispute at the pleadings stage.

As a result, a patent can only be deemed ineligible on a Rule 12(b)(6) motion in the unusual case “when there are no factual allegations that, taken as true, prevent resolving the eligibility question as a matter of law.” *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1125 (Fed. Cir. 2018). Here the complaint, along with the patents themselves, explain the inventive facts and demonstrate the claimed technological improvements in the field of art. Defendants’ Motion does not even mention, or attempt to address, these claimed improvements and inventive concepts, which must be taken as true advances here.¹

The Court should also refuse to grant dismissal on the pleadings when, as here, claim construction is required to understand claim terms or address disputes over meaning. As this Court has observed, “a definitive ruling on eligibility before claim construction is only warranted in narrow circumstances, making such a ruling the exception rather than the rule.” *Phoenix Licensing, LLC v. CenturyLink, Inc.*, Case No. 2:14-cv-965-JRG-RSP, 2015 WL 5786582, at *2 (E.D. Tex. Sept. 30, 2015). The Court should not simply accept that “Defendants’ characterization of the claims and implicit positions on the meaning of claim terms are correct without a meaningful ability to examine fully what a person of ordinary skill in the art would interpret those terms to mean.” *Id.* at * 3. Here, claim construction will be required before the Court can meaningfully address all of the issues and fact disputes raised by the Motion. *Ultramercial, Inc. v. Hulu, LLC*, 722 F.3d 1335, 1339 (Fed. Cir. 2013), *vacated on other grounds* 573 U.S. 942 (2014) (“claim construction should be required” when there are factual disputes).

¹ If the Court should find that the record does not fully establish the patentability of any asserted patent, Harris requests leave to amend to assert additional factual support. Such leave is liberally granted and would be appropriate here. *See, e.g.*, Fed. Rule Civ. Proc. 15(a)(2); *Aatrix*, 882 F.3d at 1126-28 (finding an abuse of discretion in denial of leave to amend for this purpose). As explained herein, however, the record on the pleadings establishes the patent eligibility of the challenged patent claims. Hence, Huawei’s motion should be denied.

B. Defendants have the burden to show claims are representative, but fail to do so here

Defendants bringing a section 101 motion bear the burden of establishing that any claims they identify as representative are indeed representative. *See, e.g., Intellectual Ventures II LLC v. FedEx Corp.*, No. 2:16-cv-00980-JRG, Dkt. 526 at 9-10 (E.D. Tex. May 10, 2018) (rejecting “conclusory assertions, devoid of any real analysis” concerning alleged representativeness); *see also Intellectual Ventures II LLC v. Sprint Spectrum, L.P.*, No. 2:17-cv-00662-JRG, 2018 WL 6804804 at *2-3 (E.D. Tex. Sept. 24, 2018). A claim is not representative of its dependent claims simply by virtue of being independent. *Berkheimer*, 881 F.3d at 1365.

Courts consistently require more than a few conclusory sentences or a footnote to establish that claims are representative. *See, e.g., Sprint Spectrum*, 2018 WL 6804804 at *3; *Perdiemco, LLC v. Industrack LLC*, No. 2:15-CV-1216-JRG-RSP, 2016 WL 5719697, at *7 (E.D. Tex. Sept. 21, 2016), *report and recommendation adopted*, No. 2:15-CV-727-JRG, 2016 WL 5475707 (E.D. Tex. Sept. 29, 2016); *JSDQ Mesh Techs. LLC v. Fluidmesh Networks, LLC*, No. 16-CV- 212-GMS, 2016 WL 4639140, at *2 (D. Del. Sept. 6, 2016) (questioning if “**all** of the challenged claims relate to the **same** abstract idea,” whether “any of the non-representative claims add one or more inventive concepts,” and “is there **any** set of facts that could be proven . . . that would result in a determination that one—or more of the claims are patent-eligible”) (emphasis in original).² Defendants provide nothing more than conclusory assertions here. *See* Mot. at 6-7 (two claims allegedly representative of 152 claims), 12 (one claim allegedly representative of 24 claims), 17 (one claim for 32 claims), 19 (one claim for 27 claims), 20-22 (one claim for 68 claims), 31 (one claim for 59 claims). Those assertions should be rejected.

² *See also IPA Techs., Inc. v. Amazon.com, Inc.*, 2018 WL 1583051, at *4 (D. Del. Mar. 31, 2018) (defendant “devoted less than one page of their opening brief” to allege representativeness).

For example, concerning the related but distinct '678 and '690 patents, Huawei argues in a few sparse sentences and one footnote that 152 distinct claims can be represented by the two claims that it discusses at any length. *See* Motion at 6-7. This Court has recently dealt with similar situations, rejecting this sort of conclusory assertion and “superficial reasoning” around representativeness. *See, e.g., Sprint Spectrum*, 2018 WL 6804804 at *3 (“The Court is mystified as to how Defendants could reasonably think that footnote 2 is sufficient to demonstrate that Claim 26 is representative of independent claims 1, 9, or 18, let alone the claims of an entirely different patent”).

What was true for the few claims alleged to be similar in *Sprint Spectrum* is true of the hundreds of claims Defendants challenge but do not meaningfully analyze here—Defendants have failed in their burden to show representativeness. Defendants’ cursory groupings of up to 152 claims for discussion fails to establish that the grouped claims are “substantially similar” and “linked to the same abstract idea.” *See CXT Systems, Inc. v. Academy Ltd., D/B/A Academy Sports + Outdoors*, No. 2:18-cv-00171-RWS-RSP, 2019 WL 1237148, at *4 (E.D. Tex. March 12, 2019) (report and recommendation) (concluding that Defendant had not satisfied its burden with a grouping of 150 alleged claims).

Further, Defendants’ brief contains no analysis of the claim elements as ordered combinations. *See Perdiemco*, 2016 WL 5719697 at *7 (faulting Defendants for “strip[ping] away all limitations related to computers as mere ‘conventional concepts’ . . . without addressing the role played by those elements in the context of the claim as an ordered combination.”). But each ordered combination may be patent eligible on its own—even if only composed of conventional elements, as Defendants incorrectly allege is the case here. *Id.*; *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

As explained further below, Harris disputes that Huawei's identified claims are representative for section 101 patentability purposes. Defendants both over-generalize the alleged abstract concepts, and ignore numerous important claim limitations that make the claims dissimilar and provide non-abstract improvements and inventive concepts. Courts are not to take this bait. *See Preferential Networks IP, LLC v. AT&T Inc. Mobility, LLC*, No. 2:16-cv-01374-JRG-RSP, 2017 WL 3816109, at *2-4 (E.D. Tex. July 15, 2017), *report and recommendation adopted*, No. 2:16-cv-01374-JRG-RSP, 2017 WL 3779989 (E.D. Tex. Aug. 31, 2017) ("The court, however, must avoid oversimplifying key inventive concepts of the claim or downplaying an invention's benefits by looking at the claim generally and ignoring its specific requirements"). (*citing McRO, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016)); *Huawei Technologies Co. Ltd. v. T-Mobile US, Inc.*, No. 2:16-CV-00052-JRG-RSP, 2017 WL 4118383, at *3 (E.D. Tex. Aug. 29, 2017), *report and recommendation adopted*, 2017 WL 4117897 (E.D. Tex. Sept. 15, 2017).

Because Huawei fails to meet its burden to show representativeness, its Motion should be dismissed at least as to the 355 claims that it only addresses via such allegations. As to the others, "[t]he question of eligible subject matter must be determined on a claim-by-claim basis." *Ultramercial*, 722 F.3d at 1340. As explained herein, those claims are patent eligible.

C. Computer networking innovations such as those asserted by Harris here are routinely found to be patent eligible

Computer and networking inventions are not inherently abstract. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). For example, claims are not abstract when "directed to a particular technical problem that only exists in wireless communication networks." *Huawei*, 2017 WL 4118383, at *3. Even when purely "software-based," such "innovations can make 'non-abstract improvements to computer technology' and be deemed

patent-eligible subject matter at step 1.” *Finjan, Inc. v. Blue Coat Systems, Inc.*, 879 F.3d 1299, 1304 (Fed. Cir. 2008).

Similarly, claims directed to the over-generalized purported abstract concepts identified by Huawei here have been deemed non-abstract. For example, the claims at issue in *Finjan* could easily be characterized as “monitoring communications to detect suspicious behavior and generating an alert” (Motion at 1), yet they were deemed to be “directed to a non-abstract improvement in computer functionality” at step one of the eligibility analysis. *Finjan*, 879 F.3d at 1304-05; *see also Huawei*, 2017 WL 4118383, at *3 (noting and agreeing with Huawei’s criticism of Defendant for “oversimplifying the claimed inventions” and ignoring specific claim limitations).

Claims involving the computerized manipulation or transmission of data are not abstract when, for example, they embody specific improvements to efficiency of a process. *See, e.g., Sycamore IP Holdings LLC v. AT&T Corp.*, 294 F. Supp. 3d 620, 652-54 (E.D. Tex. 2018) (As such, the recited protocol, even though expressed (as are all computer operations) as an algorithm, is a concrete technical contribution and not simply the embodiment of an abstract idea.”); *Preferential Networks*, 2017 WL 3816109 at *3 (finding claims patent eligible that were “directed to the manner by which data is transmitted between two computer systems—which is not a law of nature, a natural phenomena, or an abstract idea”). That Huawei finds transmitting or receiving data elements in claims here and in other cases finding ineligibility, is of no importance. Transmit and receive elements are also present in cases where courts find the claims non-abstract and patent eligible. *See, e.g., id.* at *1-2; *SimpleAir, Inc. v. Google, Inc.*, 136 F. Supp. 3d 745, 747-48 (E.D. Tex. 2015); *Finjan*, 879 F.3d at 1303 (“receiving . . .”); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1249-50, 1259 (Fed. Cir. 2014) (“receive”

and “transmit”). This underscores why claims must be analyzed “as a whole” and with reference to their disclosed advances. *Huawei*, 2017 WL 4118383, at *3 (“[Defendant’s] characterization ignores the other limitations of the challenged claims”).

The proper step one eligibility analysis begins by “first examin[ing] the [] patent’s ‘claimed advance’ to determine whether the claims are directed to an abstract idea.” *Finjan*, 879 F.3d at 1303. Courts properly ask whether the claims focus on a “specific asserted improvement in computer capabilities” or merely use computers as a tool to implement a process. *Id.* (citing *Enfish*, 822 F.3d at 1335–36). As this Court observed in *SimpleAir*, the proper analysis is to “examine the Patents-in-Suit” rather than “reach into a patent and extract an abstract idea,” because “every invention can be reduced to some form of an abstract idea.” 136 F. Supp. 3d at 750-51. Accordingly, the patents-in-suit here should be judged on their claimed advances rather than the broad conceptual categories suggested in the Motion.

The same analysis applies for internet security patent claims like those upheld in *Finjan*, computer networking patent claims like those upheld in *Preferential Networks* or *Huawei*, or data encoding/decoding patent claims like those upheld as non-abstract in *Realtime*. See *Realtime Data, LLC v. Carbonite, Inc.*, No. 6:17-CV-00121, 2017 WL 4693969, at *7 (E.D. Tex. Sept. 20, 2017) (“These claims address improvements to data acceleration using specific elements and their ordered combination.”).³ Similarly, when “the claims are directed to a specific implementation of a solution to a problem in the software arts,” or “a specific improvement to the way computers operate,” they are not to an abstract idea, and courts find

³ The case was transferred before the cited report and recommendation could be adopted by the District Judge. In an earlier case in this district, the court declined to dismiss *Realtime*’s compression patents as abstract, finding that “fact and claim construction issues” prevented it from doing so. See *Realtime Data LLC v. Actian Corp.*, No. 6:15-CV-463-RWS-JDL, 2015 WL 11089485, at * 6 (E.D. Tex. Nov. 30, 2015), *report and recommendation adopted*, 2016 WL 259581, at *1 (E.D. Tex. Jan. 21, 2016).

them patent eligible. *Enfish*, 822 F.3d at 1336, 1339; *see also Trading Techs. Int'l, Inc. v. CQG, Inc.*, 675 Fed. Appx. 1001, 1004–05, 2017 (Fed. Cir. 2017) (“Precedent has recognized that specific technologic modifications to solve a problem or improve the functioning of a known system generally produce patent-eligible subject matter.”). Two days ago, the Federal Circuit again affirmed that this is the correct analysis, upholding network security claims as not abstract because they are directed to “an improvement in computer network technology” or “a technological solution to a technological problem” *SRI Int’l, Inc. v. Cisco Sys., Inc.*, No. 2017-2223, 2019 WL 1271160, at *4 (Fed. Cir. March 20, 2019).

Each of the patent-specific Sections below details the specific claimed solution or improvement, described in the patent and pled in the Amended Complaint, that renders each claim patent eligible. Each “claimed advance as a whole” is “directed to a particular technical problem” of wireless communication networks at the time—and is not an abstract idea under step one. *Huawei*, 2017 WL 4118383, at *3.

D. Whether claimed inventions are unconventional is ordinarily a question of fact that cannot be decided on the pleadings, as here

The second step of the eligibility analysis will ordinarily involve fact or claim construction issues that preclude resolution on a motion to dismiss, as is the case here. *See, e.g., Berkheimer*, 881 F.3d at 1369 (“Whether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination”).

Courts should proceed to the second step of the eligibility analysis only if “the Court finds an ineligible concept after considering the claims’ ‘character as a whole’” at step one. *Preferential Networks*, 2017 WL 3816109 at *3. Only then, if the claims are directed to an abstract idea, does the Court evaluate whether there is “an ‘inventive concept’—i.e., an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to

significantly more than a patent upon the [ineligible concept] itself.”” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 217-18 (2014). Such an inventive concept can come from unconventional steps that confine the claims to a “particular, useful application of the principle,” *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 84 (2012), or where “specific technological modifications” “solve a problem or improve the functioning of a known system,” see *Trading Techs*, 675 Fed. Appx. at 1004-05. Here, as explained further below, each claim has elements corresponding to inventive concepts.

An inventive concept can be found in the individual claim elements or in their ordered combination. *Berkheimer*, 881 F.3d at 1366 (analyzing “the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’ into a patent-eligible application.””). Therefore, even if some or all elements are deemed conventional, “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *Bascom*, 827 F.3d at 1350.

Huawei’s motion never considers the challenged claims as an ordered combination, instead attacking individual elements that it asserts are conventional, while ignoring others. But as Huawei previously argued to this Court: “Here, [Huawei] makes the same mistake as the *Bascom* defendants. It isolates the claim limitation elements and concludes that each element was known or conventional. (See Mot. at [9-10, 15, 27-29, 33-34].) That is the incorrect analysis.” *Huawei Technologies Co. Ltd. v. T-Mobile US, Inc.*, No. 2:16-CV-00052-JRG-RSP, Dkt. 277 at 11 (Aug. 7, 2017) (“Huawei 101 Opposition”).

In sum, Huawei’s Motion does not follow the proper eligibility analysis at either step one or step two. Instead of starting with the claimed improvement of the patent, Huawei over-

simplifies the field it claims the patent is “directed to” until that generalization encompasses some example cases finding ineligibility. This is an error that courts, and Huawei, have singled out for criticism in the past. *See, e.g.*, Huawei 101 Opposition at 7-10. And at step two, Huawei focuses entirely on isolated claim elements it asserts are conventional, ignoring other elements and ignoring the elements as an ordered combination. This is also error. *Id.* at 11. As detailed below, properly focusing on the claimed technological improvement of the patents demonstrates that they are non-abstract. And even if they were directed to a high-level concept deemed abstract by the Court, they each contain specific inventive concepts that render them patent eligible. These improvements and inventive concepts are captured in the claims, explain specific solutions and not merely results, and thus qualify the claims as patent eligible.

III. THE ASSERTED PATENTS ARE PATENT ELIGIBLE

A. The '678 and '690 Patents Teach and Claim Patentable Improvements to Detecting Intrusions into Local and Metropolitan Wireless Networks

The '678 and '690 wireless network security patents teach and claim innovative and unconventional ways of detecting rogue devices that gain access to an authorized address and/or ID. *See, e.g.*, '678 and '690 patents at 2:23-34; Amended Complaint at ¶¶ 20-23. As explained in the specifications, an approach that merely compared incoming network addresses to known addresses ('678 and '690 patents at 2:2-6) would not detect intrusions by a bad actor in possession of a known network address or ID (*id.* at 2:23-28). The patented inventions addressed this problem of how to detect intrusions in the network by entities that attempt to mask their intrusion behind an otherwise legitimate network address. *Id.*; *see also* Motion at 5.

The patents describe a “policing station” that monitors transmissions among the wireless network nodes. *See, e.g., id.* at 2:40-42, Figures 1-10. They explain, and claim, various alternate intrusion detection methods that were unconventional at the time and improve upon the operation

of the network by solving the stated problem. *See, e.g., id.* at Figures 11-21. For example, Figures 9 and 19 show policing for and detecting “collisions of predetermined packet type.” The specification teaches “if a certain type of packet is supposed to have a time delay between transmissions, (e.g., a few seconds, etc.), if two such packet types are transmitted too close together (i.e., with less than the requisite delay time between them), this would be considered a collision.”. ’690 patent at 8:41-53. This improved technique—which unlike prior techniques can detect intrusions regardless of whether the intruder is spoofing a known address—is captured in the claims. *See, e.g., id.* at 18:1-12 (claim 71: “detect collisions of packets”). There are many other novel techniques described and claimed in the patents.

i. The ’678 and ’690 patent claims are directed to specific improvements in the operation of wireless networks, not an abstract idea.

The novel detection techniques described and claimed in the ’678 and ’690 patents are plainly directed to technical improvements in computer networks that improve security via specific intrusion detection techniques. Such inventions are not abstract. *See Ancora Techs., Inc. v. HTC Am., Inc.*, 908 F.3d 1343, 1348 (Fed. Cir. 2018), *as amended* (Nov. 20, 2018) (“Improving security—here, against a computer’s unauthorized use of a program—can be a non-abstract computer-functionality improvement if done by a specific technique that departs from earlier approaches to solve a specific computer problem.”); *see also Finjan*, 879 F.3d at 1304-05. The conclusory assertions of Huawei’s Motion do not prove otherwise.

As explained above, Harris disagrees with Huawei’s implausible assertion that all 152 claims of these two patents are the same for purposes of patent eligibility such that they can be represented by just two claims. Motion at 6-7. The various claims are each directed to particular, innovative detection methods using particular kinds of data. Huawei’s disparaging of the claimed advances as mere “criteria,” and grouping of them all them under the label “[X],”

(*id.*) intentionally obscures the key innovations of the patents—and is precisely what courts, and Huawei, have criticized in other cases. *See, e.g., Huawei*, 2017 WL 4118383, at *3 (“oversimplifying the claimed inventions and ignoring the claim limitations that require particular steps to be performed with particular data”).

Each of the claims includes elements directed to specific improvements to the security of wireless networks. Contrary to Huawei’s unsupported assertions (Motion at 6), the specification explains and teaches how to implement these specific techniques. The example of detecting collisions of packets is discussed above. As further examples, what is meant by “collisions of a same MAC address” is discussed in the ’690 patent at Fig. 20, 10:34-43. The ’678 patent explains how to “detect contention-free mode operation outside of a CFP” at Fig. 4 & 14, 7:21-45, 9:36-50. It also explains the usefulness, and how to detect, an “illegal NAV value” at Fig. 3 & 13, 7:3-20, 11:54-65, and how to “detect failed attempts to authenticate MAC addresses” at Fig. 2 & 12, 6:45-60, 9:13-23.

Huawei’s argumentative claim chart, “Appendix A,” actually demonstrates the distinction that the rest of its Motion obscures. The invalidated claim from the *FairWarning* case contained the non-specific element “applying the rule.” Motion at Appendix A. The court there evaluated the claims to determine if “the incorporation of the claimed rules” “improved [the] existing technological process,” and said no in that case. *See FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1094-95 (Fed. Cir. 2016) (*quoting McRO*, 837 F.3d at 1313). But here, in place of the generalized “rule,” the claims recite specific steps such as monitoring transmissions to “detect failed attempts to authenticate MAC addresses” or “detect collisions of a same MAC address.” Motion at Appendix A.

Unlike the claims in *FairWarning*, which reflected “age old practices,” as discussed

above these steps correspond to specific improvements in existing technological processes—a fact not subject to dispute at this stage. *See* Complaint at ¶¶ 21, 23. The claims here are instead like those deemed non-abstract and valid in *Ancora* and *McRO*. *See Ancora*, 908 F.3d at 1348 (“[t]he claimed method here specifically identifies how that functionality improvement is effectuated in an assertedly unexpected way”). For example, detecting a threshold number of “collisions of the same MAC address” improves the system by detecting when an unauthorized rogue device attempts to use a known address at the same time as a legitimate user. *See* ’690 patent at Figs. 10 & 20, 2:23-34, 10:34-43, 18:36-46 (claim 78).

That Defendants can think of an analogy to a feudal castle guard (see Motion at 7-8) does not render the specific technological improvements here abstract—just as it would not have in *Ancora* or *Finjan* where security patent claims were deemed patent eligible.⁴ Similarly, these patent claims do not merely apply a general concept using computers. Instead, they solve specific problems arising in wireless computer networks with innovative solutions specific to wireless computer networks. *See, e.g.*, ’678 patent at Fig. 4 & 14, 7:21-45, 9:36-50, 11:5-12:8 (claim 5: “detect contention-free mode operation outside of a CFP”); *Ancora*, 908 F.3d at 1348 (“a specific technique that departs from earlier approaches”).

Huawei’s Motion should be denied with respect to the ’678 and ’690 patent claims.

ii. The ’678 and ’690 patent claims capture inventive concepts.

Huawei’s attempt to frame certain elements of the claims here as generic or conventional fares no better than its step one analysis above, because it suffers the same flaws. Namely, by “isolat[ing] the claim limitation elements and conclud[ing] that each element was known or

⁴ In any event, Defendants’ analogy to a password corresponds to the known solution of comparing IDs, and does not address the stated problem of rogue agents who already know access IDs.

conventional,” (*see* Huawei 101 Opposition at 11), Huawei ignores other unconventional claim limitations and also fails to consider the claims as an ordered combination (*id.* at 12-13).

For example, Huawei asserts, as do the patents, that a “MAC layer” and monitoring of MAC addresses were known. (Motion at 9-10, 10-11). But Huawei does not assert, and could not establish in contradiction to the pleadings, that the claimed advances in how that monitoring occurs—such as detecting “collisions of the same MAC address”—were stated to be generic or conventional at the time of the patent. Those elements (in Huawei’s “[X]” grouping) are presumptively unconventional inventive concepts here, including because the patents say so, and claim them as advances over the prior art. *Berkheimer*, 881 F.3d at 1369 (“The improvements in the specification, to the extent they are captured in the claims, create a factual dispute regarding whether the invention describes well-understood, routine, and conventional activities.”)

The claim elements here are also not mere functional results, but rather “specific steps—[such as detecting collisions of a same MAC address to identify intruders]—that accomplish the desired result.” *Finjan*, 879 F.3d at 1305. For example, the claim elements provide distinct and specific context to the function verb “detecting” by virtue of being on the other side of the transitional “by.” *See, e.g.*, Motion at Appendix A (“detecting intrusions into the wireless network by monitoring transmissions . . . to detect collisions of a same MAC address”). As such, the elements claim **how** detection specifically occurs, and provide an ordered combination, contrary to Huawei’s misleading conclusory assertions. And as discussed above, the specifications, properly considered here, provide additional teaching concerning how to perform

these claimed techniques.⁵

Even if the Court were to reach step two of the eligibility analysis, the claims each contain inventive concepts that render them patent eligible. Huawei has not clearly and convincingly proven otherwise, including because it has ignored the very claim limitations that capture the inventive concepts, and has for all claims failed to consider them as an ordered concept. *Berkheimer*, 881 F.3d at 1366.

B. The '227 Patent Teaches and Claims Patentable Improvements to Establishing the Security Posture of a Network Using Disparate Sources

The '227 patent claims advances in determining and displaying the security vulnerabilities in a complex network topology—in which multiple risk assessment tools are used in establishing the security posture of the network. *See, e.g.*, '227 patent at 3:1-21; Amended Complaint at ¶ 13. Developed under a grant from the Air Force ('227 patent at 1:6-9), the patent improved efficiency by, for example, teaching how to integrate multiple different tools and modes of analysis. *See, e.g., id.* at Figs. 3-6, 3:11-16 (“Integration of the information and the resulting informed assessments available by applying multiple tools would produce a more robust and accurate picture of a system’s security posture.”), 7:1-13, 7:55-58 (“The data results are correlated to determine a security posture of the network”), 16:10-26 (claim 1: “correlating a system object model database that supports information data requirements of disparate network vulnerability analysis programs with any data results obtained from the programs”).

⁵ Harris believes that construction of these claim terms in the context of the specification could assist the Court in deciding issues of patent eligibility. Dkt. 37-1 at 4-5. Huawei’s contrary view depends on the same reductionist over-simplification of the claim terms as does its Motion. *See id.* at 6-7 (“[X]”). Denial of Huawei’s Motion brought on all claims of all patents—whether because the claims are non-abstract, because there are fact issues as to inventive concepts, or because construction would inform the answers to those questions—would also allow the case to progress and narrow in the ordinary course according to the Court’s established procedures.

The '227 patent also teaches and claims advances that enable the system operator to both provide data about the network in an efficient, single place, and to quickly determine via a graphic user interface (GUI) the overall health and areas of concern within the system. *See, e.g., id.* at 7:9-13 (“addresses the need for a single internal representation of a network to provide data to the network vulnerability analysis programs”); 11:1-4 (“NVT combines multiple types of data, from multiple sources, with other contextual information to form an integrated view of a networked system’s security posture”); *see also id.* at Fig. 8B, 9:5-8, 18:50-53 (claim 24) (disclosing and claiming a “vulnerability profile”).⁶

These claimed advances addressed and solved real-world network operation and security problems described in the '227 patent. *See, e.g.,* '227 patent at 2:8-30. For example, available risk analysis tools focused on only certain aspects of security risk (*id.* at 2:8-10) or only one type of device or layer within a network (*id.* at 2:44-47). Even available computerized tools that attempted to provide an overall risk assessment suffered drawbacks from inefficient data input modes and repetitive analysis. The teachings of the '227 patent alleviated these problems. *See id.* at 2:56-3:7, 3:18-21 (“without having to analyze the network multiple times”), 7:9-13 (“the need for a single internal representation of a network”). The '227 patent thus improved the art of integrated security risk analysis over available computerized system-level approaches. *Id.*

i. The '227 patent claims are directed to specific improvements in the operation of wireless networks, not an abstract idea.

Beginning properly by “first examin[ing] the [] patent’s ‘claimed advance’ to determine whether the claims are directed to an abstract idea” or instead a “specific asserted improvement in computer capabilities,” the claims of the '227 patent are clearly patent eligible. *Finjan*, 879

⁶ The Federal Circuit in *Finjan* found claims attaching a “security profile” to a downloadable file to be a non-abstract improvement. 879 F.3d at 1303-1306.

F.3d at 1303; *Enfish*, 822 F.3d at 1335–36. As discussed above, the patent teaches and claims specific techniques to more efficiently determine or establish the “security posture” of a network by correlating disparate results, including by employing a “system object model database” claimed and described in the specification. *See, e.g.*, ’227 patent at Figs. 3-6, 3:11-16, 7:55-58, 16:10-26. Contrary to Huawei’s conclusory assertion, the patent details at length specifically how these claimed advances are accomplished. *Id.*

Huawei’s motion completely ignores these specific improvements, which when understood in context of the teachings of the ’227 patent, are sufficient to establish patent eligibility. Instead Huawei disparages the patent as being about color-coding and extracts an over-generalized purported abstract concept. Motion at 11. But even within the context of the integrated GUI display, specific advances actually taught and claimed in the ’227 patent are innovative with respect to specific problems in known systems, as discussed above.

Courts frequently uphold patent claims directed to improvements in displays or graphical user interfaces (GUIs) as non-abstract. For example, in *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999 (Fed. Cir. 2018), the court considered an invention in which “tabs” were added to the display of spreadsheets to facilitate accessibility and navigation. This addition to the display “circumvent[ed] the arduous process of searching for, memorizing, and entering complex commands.” *Id.* at 1002. The claims directed to tabs were not abstract, because they solved a known technological problem, “by providing a highly intuitive, user-friendly interface” for using the worksheets. *Id.* at 1008. The *Data Engine* court noted prior consistent reasoning and results. In *Core Wireless*, the claims “were directed to an improved display interface that allowed users to more quickly access stored data,” thereby “improving the efficient functioning of the computer.” *Data Engine*, 906 F.3d at 1009 (citing *Core Wireless*, 880 F.3d 1356). In *Trading*

Technologies, the claims were directed to a GUI that paired dynamic prices alongside static prices, which “reduc[ed] the time it took to place and execute a trading order.” *Data Engine*, 906 F.3d at 1009-10 (citing *Trading Techs.*, 675 Fed. Appx. 1001).⁷

The cases relied on by Huawei are easily distinguished—each referred to a lack of specific improved structures or techniques, neither of which is absent here. For example, the claims in *Electric Power* involved the mere display of power grid information, without “requir[ing] a new source or type of information, or new techniques for analyzing it.” *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016); *see also Move, Inc. v. Real Estate Alliance Ltd.*, 721 F. Appx. 950, 956 (Fed. Cir. 2018) (noting lack of “evidence in the specification that the claimed invention improves the functioning of the computer itself”). And while this Court has previously invalidated a patent claim to a simplistic business data integration, it was a do-it-on-a-computer claim, without meaningful limitations on the steps. *See Intellectual Ventures I LLC v. J. Crew Grp., Inc.*, No. 6:16-CV-196-JRG, 2016 WL 4591794, at *2, 4 (E.D. Tex. Aug. 24, 2016).

The claims here, in contrast, address specific improvements to computerized network tools, and the ’227 patent teaches and claims specific techniques and structures used in inputting information about security vulnerabilities, correlating results to resolve the “security posture” of the network, and displaying all of this in an efficient manner. “Like the improved systems claimed in *Enfish*, *Thales*, *Visual Memory*, and *Finjan*, these claims recite a specific improvement over prior systems, resulting in an improved user interface for electronic devices.”

⁷ *See also IDB Ventures LLC v. Charlotte Russe Hldgs, Inc.*, 2:17-CV-660-WCB-RSP, 2018 WL 5634231, at *5 (E.D. Tex. October 31, 2018) (report and recommendation) (claims directed to a query dialog box in a display were a specific improvement and therefore not abstract); *CXT Systems*, 2019 WL 1237148, at *3-4 (report and recommendation) (displaying results of user query and preview of results at same time is not abstract).

Core Wireless, 880 F.3d at 1363.

Finally, Huawei fails in its extended efforts to characterize the '227 patent as human-performable—which in any event does not answer the question of whether a claim is abstract. “It is not enough . . . to merely trace the invention to some real-world analogy.” *Data Engine*, 906 F.3d at 1011. Its assertions about “pen and paper” are inapt because they depend on Huawei’s mischaracterization of the patent as directed only to coloring maps. Motion at 14-15. Similarly, as discussed above, the '227 patent teaches and claims much more than the mere automation of a manual process with computers. *See, e.g.*, '227 patent at 2:56-3:7, 3:18-21, 7:9-13, 16:10-20 (discussing problems with, and improvements to, known integrated network security systems).

Huawei’s Motion should be denied with respect to the '227 patent claims.

ii. The '227 patent claims capture inventive concepts.

Huawei only analyzes claim 24 of the '227 patent with respect to step two, and does so in conclusory fashion. Motion at 15-16. Harris disputes that claim 24 is representative, including because other claims also carry distinct and specific improvements, as discussed above.

The '227 patent claims contain multiple patent-eligible inventive concepts, including but not limited to: determining or establishing the security posture or vulnerability posture, use of the system object model database, and various GUI structures such as the claimed vulnerability profile. *See, e.g.*, '227 patent at 16:10-26 (claim 1), 16:37-67 (claims 5-8), 18:42-57 (claim 24). As discussed above, the '227 patent asserts that these claimed inventive concepts are improvements over existing systems. Huawei fails to provide contrary evidence or even directly address each of these concepts. Further, the Motion does not discuss or provide evidence to rebut the presumption that each of the claims contains an inventive concept as an ordered

combination. *Berkheimer*, 881 F.3d at 1366.

Huawei has not met its burden to supply clear and convincing evidence of ineligibility. To the extent it disputes the unconventionality of any of the claimed, inventive concepts, that fact dispute precludes dismissal on the pleadings. In addition, Huawei’s mischaracterization of the character of the ’227 patent and its claims here suggests that there will be disputes about claim meaning that require claim construction before eligibility at step two can be resolved. *See also* Dkt. 37-1 at 4.

C. The ’986 Patent Teaches and Claims Patentable Improvements to Adaptively Scheduling Communications Over Wireless Network Links

The ’936 patent was originally developed with support from the Naval Research Laboratory (’986 patent at 1:12-15) and advanced the art of scheduling transmissions in wireless “ad hoc” networks.⁸ The claimed new scheduling methods were invented to respond to varying demands on such communications links. *Id.* at 2:16-34; Amended Complaint at ¶ 15. For example, as the ’936 patent teaches: “Scheduling time slots for wireless communication systems operating with directional antennas, particularly when the wireless communication systems are mobile, is complex. In such a dynamic network, mobile communication systems are continuously entering into and dropping out of the network. Furthermore, procedures for interference detection and avoidance are needed.” ’986 patent at 1:65:2:4. The patent goes on to explain that “procedures for reporting link quality” are needed in such networks. *Id.* at 2:5-13.

The claimed advances of the ’936 patent addressed these stated needs. *Id.* at 2:16-34.

⁸ The ’986, ’537, and ’426 patents are unrelated and concern different technologies and inventions within the broad field of computer networking. As such, Defendants’ cursory joint treatment of these patents in their Motion is inappropriate under controlling decisions that require patent-by-patent and claim-by-claim analysis. *See, e.g., Ultramercial*, 722 F.3d at 1340, *Huawei*, 2017 WL 4118383, at *3. Accordingly, Harris will discuss each of these distinct patents in separate sections herein.

For example, the patent teaches how to construct, and claims the use of, various “link utilization metrics.” *See, e.g., id.* at 2:35-67, 4:23-32 (instructing how metrics can be responsive to data priority levels), 5:47-53, 5:66-6:19 (discussing adaptive ranking and re-allocation of time-slots based on link utilization), 15:57-65 (teaching use of queue buildup as a utilization metric), 38:51-56, 39:29-35, 41:18-31 (increased and decreased capacity metrics). These improvements taught in the specification are captured in the claims. *See, e.g., id.* at 57:13-14 (claim 1: “determining respective link utilization metrics for each data priority level for each communication link”), 60:11-14 (claim 25: “determining link utilization metrics for each communication link based upon a quantity of data previously sent over the communication link during the semi-permanent time slots and the data queues”).

The patent also teaches how to assign the claimed “demand assigned time slots” and “semi-permanent time slots” based on the metrics, in order to accomplish the needed, complex scheduling in an environment where network topology changes as systems enter and leave the ad hoc network. *See, e.g., id.* at Figs. 14-16 and accompanying descriptions, 14:1-16:8, 38:18-22, 57:9-10 (claim 1), 60:7-18 (claim 25).

Huawei’s over-simplification of these elements as “schedule something,” “determine something,” and “schedule something else” (Motion at 16) ignores all of the above specific teachings about the claimed solutions—solutions that the ’936 patent asserts address specific needs in wireless mobile ad hoc networks and thereby improve those systems. Huawei’s tactic is contrary to Huawei’s own advice in prior cases, *see Huawei*, 2017 WL 4118383, at *3, and misapprehends the correct section 101 analysis. *See SimpleAir*, 136 F. Supp. 3d at 750 (dismissing Defendants’ characterization of the claims as “ignoring significant claim limitations” and failing to encompass the claimed invention). Similarly, its conclusory treatment of one

claim as representative of the other 31 (Motion at 17) does not meet its burden to establish that disputed assertion. *See* Section II.B above.

i. The '986 patent claims are directed to specific improvements in the operation of wireless networks, not an abstract idea.

Courts, including in this district, frequently find computer networking techniques and protocols to be non-abstract and patent eligible when, as here, the patent claims are directed to specific improvements that solve known problems or address specific needs in those networks. For example, in the *Huawei* case discussed above, networking claims were deemed non-abstract because they were directed to a “particular technical problem” in wireless communication networks. 2017 WL 4118383, at * 3; *see also Preferential Networks*, 2017 WL 3816109 at *3, *SimpleAir*, 136 F. Supp. 3d at 750; *Sycamore*, 294 F. Supp. 3d at 652-54 (“a specific technical solution to a specific problem in telecommunications.”).

Ignoring all of these results, Defendants’ Motion wrongly suggests that computer network routing and scheduling patents are somehow *per se* abstract. *See* Motion at 22. But this Court recently found a wireless network scheduling patent non-abstract, because it disclosed and claimed specific technologic modifications improving upon known computer networking problems. *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, No. 2:17-CV-00577-JRG, 2018 WL 6584486, at *2-3 (E.D. Tex. Sept. 4, 2018) (“*IV v. T-Mobile*”) (*citing Trading Techs.*, 675 F. Appx. at 1004-1005, and other Federal Circuit opinions). In that case, as here, Defendants had suggested the claimed inventions could be performed with pen and paper, and even drew a picture. *Id.* at *2. But as this Court rightly understood, and as is also plain here, Defendants’ trivialization of the invention was not controlling. *See id.* at *2-3. There, as here, the “technical solution to a technical problem”—that was described in the specification and captured in the corresponding claim elements—rendered the claims non-abstract and patent eligible. *Id.* at *3.

Each of Huawei's cited cases is distinguished on these same grounds—courts there looked for, but simply did not find on the facts, the “specific improvement to the way computers [or other technologies] operate” that is plainly present here. *See Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1343-1345 (Fed. Cir. 2018) (observing this distinction between eligible and ineligible claims and the need to “tread carefully” when drawing lines); *Two-Way Media Ltd. v. Comcast Cable Commc'ns LLC*, 874 F.3d 1329, 1338 (Fed. Cir. 2017) (no indication of “an improvement in the functioning of the system”); *Affinity Labs of Texas, LLC v. DirecTV, LLC*, 838 F.3d 1253, 1262 (Fed. Cir. 2016) (only use of, not an “improvement in” cellular phones). Here, as in *IV v. T-Mobile*, the technical solution to a technical problem in wireless network communications taught and claimed in the '936 patent is not abstract, and the claims are directed to patent-eligible subject matter.

ii. The '986 patent claims capture inventive concepts.

Huawei spends less than three pages of its Motion on a conclusory step two analysis that attempts to cover three unrelated patents encompassing 127 claims in total. Motion at 27-29. Huawei focuses on cherry-picked elements while ignoring other key elements and the claims as an ordered combination entirely, an approach it knows is incorrect and has criticized. *See, e.g.*, Huawei 101 Opposition, No. 2:16-CV-00052-JRG-RSP, Dkt. 277 at 11.

The '986 patent claims contain multiple patent-eligible inventive concepts, including but not limited to the link utilization metrics and time slot allocations discussed above. The specification asserts that these elements are advantages of the patent's inventive solution. *See, e.g.*, '936 patent at 1:65-2:33. “Under Rule 12(b)(6), the Court is required to take these affirmative statements as true.” *IV v. T-Mobile*, 2018 WL 6584486, at *3. Huawei does not provide evidence that any of these elements are unconventional, instead suggesting that they can

be “stripped away” from the analysis as “abstract ideas.” Motion at 27. This is error, as is Huawei’s failure to consider the claims as ordered combinations. *See Perdiemco*, 2016 WL 5719697 at *7. Huawei has not met its burden to establish conventionality by clear and convincing evidence for *any* of the 127 claims it seeks to address on these pages.

D. The ’537 Patent Teaches and Claims Patentable Improvements to Clustering of Nodes in Ad Hoc Wireless Networks as the Network Changes

The ’537 patent teaches and claims innovations in the clustering of nodes in ad hoc wireless networks as the network changes. ’537 patent at 4:60-5:11 (“Accordingly, it is an object of the present invention to facilitate cluster formation in accordance with network topology information to minimize the quantity of hops for data transmission within the network”); Amended Complaint at ¶ 17. The background section of the ’537 patent describes at length several known problems with wireless networks of the time, noting that “the ad hoc network node is provided with a difficult task of determining a routing path for data transmission.” *Id.* at 1:40-50; *see also id.* at 3:41-4:15 (discussing “several disadvantages” of “clustering techniques of the related art,” including lack of links between head nodes (3:42-52), dependence on node start times leading to non-optimal configurations (3:52-59), difficulties in “determination of an appropriate interval between node status packet transmissions” (3:59-4:2), and congestion from overhead traffic as networks grow large (4:3-15)).

The claimed advances of the ’537 patent addressed these known problems and improved functionality and efficiency in wireless networks. For example, the ’537 patent states that its cluster formation technique “reduces overhead traffic” on the network in multiple specific ways, including by use of a third tier of nodes. ’537 patent at 4:38-54; *see also id.* at 29:15-42 (claim 36: claiming techniques for forming a “third network tier to transmit network information”). The patent also states that its techniques improve the efficiency of optimized cluster formation,

including by the claimed adaptive control of the interval between unit status messages. ’537 patent at 4:26-37; *see also id.* at 28:32-36 (claim 30: claiming adjustment of the interval between unit status messages in response to detecting modifications in connectivity).

These claimed advances improved wireless network communications by providing: “a novel method and apparatus for communication network cluster formation and transmission of node link status messages with *reduced protocol overhead traffic*.” *See, e.g., id.* at 23:12-21 (emphasis added). The disclosures of the specification provide more details on how the claimed advances can be accomplished. *See, e.g.,* Fig. 9, 5:34-38, 7:37-42, 8:6-26, 8:60-66, 11:55-12:2

As with the other patents, Huawei’s over-simplified description and characterization of the ’537 patent as directed to “sending and directing information” (Motion at 20) fails to capture the actual invention and overlooks all of the important claimed advances discussed above—as does its cursory attempt to assert that one claim could be representative of 68 for purposes of analysis (Motion at 20-22). *Huawei*, 2017 WL 4118383, at *3, *SimpleAir*, 136 F. Supp. 3d at 750; *Sprint Spectrum*, 2018 WL 6804804 at *3.

i. The ’537 patent claims are directed to specific improvements in the operation of wireless networks, not an abstract idea.

As discussed above in Section II.C, claims containing elements that transmit data are not *per se* abstract, and many such claims have been found patent eligible at step one. *See, e.g., Preferential Networks*, 2017 WL 3816109 at *3 (claims “directed to the manner by which data is transmitted between two computer systems” not abstract); *see also* Huawei 101 Opposition at 9-10 (discussing and approving of the analysis of *Preferential Networks*). Huawei’s argument concerning alleged abstractness for the ’537 and ’426 patents in its Motion depends on ignoring these cases, and the actual claimed advances discussed herein, and instead suggesting that transmitting data is abstract because it was part of the claims deemed abstract in *Two-Way Media*

or like cases. See Motion at 23-25.

But as discussed above in Sections II.C and III.C.i, the result in each of the cases—including those that Huawei cites here and those that find networking claims patent-eligible—depend on whether the court finds “an improvement in the functioning of the system.” *Two-Way Media*, 874 F.3d at 1338; *IV v. T-Mobile*, 2018 WL 6584486, at *3 (“a technical solution to a technical problem”); *Huawei*, 2017 WL 4118383, at *3 (“Huawei responds the claims are directed to a particular problem found in wireless communications networks”). The specific technical problems, and claimed solutions, of the ’537 patent discussed above plainly qualify as non-abstract improvements to wireless networks under these cases.⁹

ii. The ’537 patent claims capture inventive concepts.

As discussed above with respect to the ’986 patent, and for the same reasons, Huawei’s sparse and cursory step two arguments fail to meet its burden with respect to any of the 68 claims of the ’537 patent, as ordered combinations or otherwise. The ’537 patent claims contain multiple patent-eligible inventive concepts, including but not limited to: techniques for sending and adjusting the interval between the claimed “unit status messages,” and the formation of a third network tier to aid cluster formation, as discussed above. The patent’s assertions that these were novel inventive concepts must be credited here. *IV v. T-Mobile*, 2018 WL 6584486, at *3.

E. The ’426 Patent Teaches and Claims Patentable Improvements to Establishing New Routes in Ad Hoc Wireless Networks

⁹ Huawei’s analogy to roads connecting medieval forts (see Motion at 26-27) underscores the lack of utility in such analogies, which do not control under the proper analysis here. See *id.* at 26 (comparing a supply caravan to a “status transmission module to facilitate periodic transmission of a unit status message”). The stretched analogy also fails to address many elements of the patent claims. For example, it does not suggest a feudal analogue to the “routing unit configuration module to determine a status of that communication unit as a transmission routing unit in response to that communication unit being designated as said routing unit, wherein said communication unit status as a transmission routing unit is fixed for flooding subsequent network connectivity messages” of claim 35. ’537 patent at 29:33-39.

The '426 patent teaches and claims improvements in establishing new routes in ad hoc wireless networks “to efficiently make use of a plurality of channels.” ’426 patent at 2:40-3:11; Amended Complaint at ¶ 19. The background section of the ’426 patent describes specific demands and challenges to routing protocols when applied to dynamic, ad hoc networks. *See, e.g.*, ’426 patent at 1:30-45 (challenges to be overcome in routing for these networks include limited system bandwidth, and because “[t]he distance between two nodes often exceeds the radio transmission range,” “a transmission has to be relayed by other nodes before reaching its destination.”), 1:56-67 (“A routing protocol needs to adapt to frequent topology changes and with less accurate information. Because of these unique requirements, routing in these networks is very different from others. . . .”). “Conventional routing protocols,” and even “mobile ad-hoc network routing protocols” did not measure up in various ways. *Id.* at 2:12-36. Importantly, “the bandwidth of a typical ad-hoc network is limited. Conventional mobile ad-hoc network routing protocols assume that all nodes are on the same channel permanently.” *Id.* at 2:28-36 (“conventional mobile ad-hoc networks do not utilize multiple channels for transmitting packet data”).

The ’426 patent addressed these deficiencies and improved upon ad hoc wireless networks by, for example, teaching and claiming techniques enabling routing in the context of multiple channels. *Id.* at 2:40-3:14 (“The method includes, at a source node, sending a route request over each of the plurality of channels to discover routing to a destination node, and selecting a route to the destination node on at least one of the plurality of channels. The route request may be sent over each of the plurality of channels sequentially, and the route request preferably includes a source node channel identifier”), 5:3-18 (example of sending route requests on each channel), 5:49-51 (example of selecting a route), 8:12-17 (claim 8: claiming these

aspects), 8:34-36 (claim 13: claiming sequential requests), 8:37-38 (claim 14: claiming source node channel identifiers). The specification provides further specific details teaching how one could implement the claimed uses of “electrically separate” wireless channels in routing. *See, e.g., id.* at Fig. 8, 4:56-6:8.

The ’426 patent repeatedly refers to the unconventionality of its approach. *See, e.g., id.* at 4:67-5:2 (“Contrary to conventional mobile ad-hoc networks, the communication links 32 exist over a plurality of channels”). The ’426 patent teaches how to use the claimed techniques, and Huawei’s conclusory assertions otherwise fall flat (Motion at 18). Here, as in other cases, the patent specification “discusses the challenges that wireless networks face when delivering QoS and reveals much of the technical nature of these solutions.” *IV v. T-Mobile*, 2018 WL 6584486, at *3. As with the other patents, Huawei’s analysis of alleged representativeness of one claim (Motion at 19) consists of nothing more than conclusory allegations devoid of any useful analysis. *See Sprint Spectrum*, 2018 WL 6804804 at *3.

i. The ’426 patent claims are directed to specific improvements in the operation of wireless networks, not an abstract idea.

The claims of the ’426 patent are directed to the specific technical solutions to the specific technical problems discussed above, and are not abstract for that reason. *See, e.g., Preferential Networks*, 2017 WL 3816109 at *3; *IV v. T-Mobile*, 2018 WL 6584486, at *3 (“a technical solution to a technical problem”); *Huawei*, 2017 WL 4118383, at *3; *see also* Sections II.C, III.C.i, and III.D.i above. Huawei’s over-simplification of the claims to “sending information” (see Motion at 25) applies the wrong approach and wrongly ignores the claimed advances of the ’426 patent, as these cases aptly demonstrate. As the Federal Circuit confirmed just days ago, the correct step one analysis looks to whether “the claims are directed to an improvement in computer network technology,” and whether “the specification bolsters our

conclusion that the claims are directed to a technological solution to a technological problem.”

SRI Int’l, 2019 WL 1271160, at *4.¹⁰ Here, applying this analysis, the ’426 patent claims are clearly directed to such a technical solution, and are patent-eligible.

ii. The ’426 patent claims capture inventive concepts.

As with the patents discussed above, Huawei has not established that the claims of the ’426 patent lack inventive concepts, as ordered combinations or otherwise. The ’426 patent claims multiple patent-eligible inventive concepts, including but not limited to the uses of multiple electrically separate channels, and the various claimed steps of sending a route request over each of those channels, selecting a route to the destination node, sequential requests, and use of a source node channel identifier, as discussed above. The patent’s assertions that these inventive concepts were not found in “conventional mobile ad-hoc networks” must be credited here. *See, e.g.*, ’426 patent at 2:12-36, 4:67-5:2; *IV v. T-Mobile*, 2018 WL 6584486, at *3.

F. The ’572 Patent Teaches and Claims Patentable Improvements to Encrypting Secure Wireless Network Traffic

The ’572 patent disclosed and claimed technical advances in the field of secure wireless local area networks. *See, e.g.*, ’572 patent at 1:64-67; Amended Complaint at ¶ 25. The background of the patent noted that encryption in wireless networks was accomplished, according to the IEEE 802.11 standard of the time, using the WEP algorithm. *Id.* at 1:46-48. That prior technique “only protects the data packet information and does not protect the physical layer header,” creating a problem of “a reduced level of security”—such as when bad actors

¹⁰ The *SRI Int’l* Court also declined to credit an attempt by Defendant to suggest that the claims there could be performed by the human mind. *Id.* at *5 (“the human mind is not equipped to detect suspicious activity by using network monitors and analyzing network packets as recited by the claims”). Similar skepticism should be applied to Huawei’s human performance analogy here (Motion at 26), in light of the complexity of the wireless mobile nodes and adaptive routing protocols here.

observe the unprotected header address information along with the “other stations on the network” that are expected to listen. *Id.* at 1:51-54. The patent also noted that existing alternatives, which could provide “confidentiality and end-to-end authentication,” were “bulky and expensive” for the context of wireless networks. *Id.* at 1:55-60. The claimed advances of the ’572 patent solved this problem specific to wireless network security, and did so “without a significant increase in cost and/or complexity.” *Id.* at 1:64-67.

Specifically, and for example, the ’572 patent taught and claimed techniques for extending the scope of encryption by including a cryptography circuit in the wireless device, such that:

The cryptography circuit may encrypt both address and data information for transmission, and decrypt both address and data information upon reception. Accordingly, a higher level of security may be provided by the encryption of the address and control portions of the transmitted packet contained within the MAC generated header.

Id. at 2:1-16; *see also* 4:20-24 (“higher level of security is thus provided.”). As the patent noted: “This information is not encrypted in conventional LAN cryptographic devices.” *Id.* The improvement of extending encryption to both address and data is captured in the claims. *See, e.g.*, 7:52-64 (claim 1), 11:1-12 (claim 47).

The specification provides further teaching of how the claimed advance can be implemented. *See, e.g., id.* at Figs 7 & 8, 5:26-30; *see also* 2:32-35, 8:22-26 (teaching and claiming the addition of encrypting bits to the transmitted information). The claimed cryptography circuit with its improved encryption was also implemented by Harris in products described in the specification. *See id.* at Fig. 9, 5:53-65 (describing the Harris “Sierra” cryptographic module), cover page (citing to Harris Product Sheet, “Sierra Cryptographic Module” Feb. 2000).

Huawei's Motion only looks at claim 1 and writes off the other 58 claims in a single conclusory paragraph that is almost completely devoid of substance. Motion at 31. But those claims also are directed to non-abstract improvements to the secure functioning of wireless networks. As one example, dependent claim 7 includes a "a protection circuit to protect against transmission of unencrypted data" ('572 patent at 8:14-16), which is described in the specification as "provid[ing] redundancy so that plain text is not accidentally transmitted from the secure wireless LAN device" (*id.* at Fig. 11, 2:27-28, 6:18-26). The Motion never mentions this protection circuit element. Huawei has not met its burden to clearly and convincingly show ineligibility of any patent claims here.

i. The '572 patent claims are directed to specific improvements in the operation of wireless networks, not an abstract idea.

As explained above, the claimed advances of the '572 patent improved wireless network security and solved specific, known problems with existing network security solutions. '572 at 1:51-54. Inventions that "improv[e] security . . . by a specific technique that departs from earlier approaches to solve a specific computer problem" are not abstract. *See Ancora*, 908 F.3d at 1348; *see also Finjan*, 879 F.3d at 1304-05.

Huawei incorrectly proceeds by extracting the general purported abstract concept of "encrypting and decrypting data," which it then shifts to the even more general "encoding and decoding data," so that it can refer to the result in *RecogniCorp, LLC v. Nintendo Co., Ltd.*, 855 F.3d 1322 (Fed. Cir. 2017). Motion at 32. This is the wrong approach. *See SimpleAir*, 136 F. Supp. 3d at 750-51. No case holds that all claims involving data encoding are abstract. The "encoding" in *RecogniCorp* was multiplication, see 855 F.3d at 1324, and in any event the proper step one analysis is case-by-case and starts with the claimed advance in the case at hand. *Finjan*, 879 F.3d at 1303.

After *RecogniCorp*, courts in the Eastern District of Texas and elsewhere have continued to find data encoding claims directed to technical improvements eligible at step one. *See, e.g., Realtime Data, LLC v. Carbonite, Inc.*, No. 6:17-CV-00121, 2017 WL 4693969, at *7-8 (E.D. Tex. Sept. 20, 2017) (finding data compression claims not abstract that “address improvements to data acceleration using specific elements and their ordered combination.”); *Sycamore*, 294 F. Supp. 3d at 652-654 (distinguishing *RecogniCorp* and declining to find claims to a compression method abstract on summary judgment record).

In particular, Courts have upheld encryption claims as non-abstract when they provide specific improvements to existing encryption technology—thereby making computer communications more secure. *See, e.g., Personalized Media Communications, LLC v. Apple Inc.*, No. 2:15-cv-1366-JRG-RSP, 2016 WL 5719701, at * 5-6 (E.D. Tex. Sept. 13, 2016), *report and recommendation adopted*, 2016 WL 5475798 (E.D. Tex. Sept. 29, 2016); *Paone v. Broadcom Corp.*, 2015 WL 4988279, at *8 (E.D.N.Y. Aug. 19, 2015) (finding an encryption method claim non-abstract because it involved “a way of making computer communication itself more effective by making that communication more secure”) (*quoting TQP Dev., LLC v. Intuit Inc.*, 2:12-cv-180-WCB, 2014 WL 651935, at *7 (E.D. Tex. Feb. 19, 2014)).

Huawei’s cited cases are inapt because those cases turn on the court’s individualized analysis of the different claims and fields of art therein. For example, in *Return Mail, Inc. v. USPS*, 68 F.3d 1350, 1368 (Fed. Cir. 2017), the court rejected the claims not merely because they involved encoding, as Huawei suggests, but because they were not “directed to a specific implementation of a solution to a problem.” Here, as detailed above, the ’572 patent claims do address, and solve, problems in wireless network security through specific implementations. Claim 1, as well as the other 58 claims Huawei does not meaningfully discuss, are patent eligible

at step one and the Motion should be denied.

ii. The '572 patent claims capture inventive concepts.

Harris offered the claimed “cryptography circuit” as part of a commercial product at the time of the patent (see '572 patent at 5:53-65), suggesting that it was in fact an inventive, unconventional solution. Huawei fails to provide any support for its conclusory assertion to the contrary. Motion at 33-34. Further, the cited specification statement about the effect of adding the “encryption bits” is not the undisputed admission of conventionality that Huawei claims. *Id.* at 33; '572 patent at 5:42-50. In fact, the specification suggests that adding encryption bits is *unconventional* because it requires an extended time for transmission as compared to the known 802.11 standard. *Id.* What a person of skill might “appreciate” from a patent’s teaching does not resolve the fact question of whether something is “conventional.” *See Berkheimer*, 881 F.3d at 1369 (“Whether a particular technology is well-understood, routine, and conventional goes beyond what was simply known . . .”)

The '572 patent claims contain patent-eligible inventive concepts, such as the *claimed* cryptography circuit, protection circuit, addition of encryption bits, as well as encryption covering both the address and data, which the patent itself states is unconventional. '572 patent at 2:14-15 (“This information is not encrypted in conventional LAN cryptographic devices”). And just as with the other patents discussed above, the Motion does not even attempt to analyze whether each claim presents an inventive concept as an ordered combination. *Berkheimer*, 881 F.3d at 1366. Should the Court reach step two of the eligibility analysis here, the Motion should be denied—both because Huawei failed to meet its burden and because there are fact disputes.

IV. CONCLUSION

Plaintiff Harris respectfully requests that the Court deny the Motion in its entirety.

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Respectfully Submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a) with a copy of this document via the Court's CM/ECF system.

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